Cannelton (later Indiana) Cotton Mills
Cannelton
Perry County
Indiana

Photographs and
Written and Historical data
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Historic American Engineering Record
National Park Service
Department of Interior
Washington, D.C. 20240

HISTORIC AMERICAN ENGINEERING RECORD

Cannelton (Later Indiana) Cotton Mills

HAER IN-1

Location:	250 feet southwest of Fourth Street between Adams and Washington Streets. UTM: 16.5222380.4195810 Quad: Cannelton, Indiana--Kentucky
Present Owner:	Conner Construction Company
Significance:	The Cannelton (later Indiana) Cotton Mill is both a monumental example of industrial architecture and evidence of a major attempt to industrialize southern Indiana. With its superb masonry construction and twin towers, the structure is one of the most impressive textile mills ever built in this country. When finish the mill incorporated the newest mechanical equipment and machinery. There was an extensive fire prevention system using pumping machines and ventilation devices. The building is also important as visual proof of the attempt to create sectional harmony in the decade prior to the Civil War. Financed by New England, Southern and Western interests, it represents a broad-based attempt to challenge the textile industry of New England. Although the mill failed to induce an industrial boom in southern Indiana, it did produce cotton cloth for over 100 years.
Historians:	Donald Sackheim and Robert Rosenberg

Business History

Organized by Southern, Western, and Northeastern capitalists and chartered by the state of Indiana on 15 February 1848, the Cannelton Cotton Mills--known shortly thereafter as the Indiana Cotton Mills--was promoted as a challenge to New England's cotton mills and an experiment in inter-regional cooperation.[1] The town of Cannelton, founded in 1835, was thought to be situated atop vast fields of bituminous coal. With inexpensive fuel to power the mill's machinery, inexpensive transportation costs provided by Ohio River steamers, and proximity to southern cotton fields, the Indiana Mills were said to possess all the resources necessary to rival the established mills in Lowell, Massachusetts.

The organizers made two serious miscalculations, however. The coal seams, which were thought to be inexhaustible, proved to be extremely shallow and within 10 years were nearly depleted. Also, the amount of capital required to construct and furnish the mill with machinery was seriously underestimated. Although such oversights soon forced the original organizers to sell the mill, it eventually achieved sound financial footing and--during the decade when southern and western interests attempted to create an atmosphere of political accomodation based on sectional interests--the mill stood as proof of industrial cooperation for mutual benefit.

Hamilton Smith, an organizer of the company who obtained the charter from the state government, was an "enlightened visionary" who thought of the Indiana Mills as an economic union of southern and western interests. (Photo IN-1 C). Smith, who was born in New Hamoshire and settled in Louisville, published several articles vaunting the advantages of the location and resources of Cannelton, and was probably instrumental in gaining an 8.8 acre grant for the mill site from the Cannelton Coal Company.[2] Smith estimated that inexpensive fuel would enable the Indiana Mills to produce cloth for a penny a yard less than Lowell. In DeBow's Commercial Review, July 1849, he proposed a 10,000 spindle mill to southern planters which duplicated the blueprints of the mill begun a month before in Cannelton.[3]

Smith brought Charles T. James into the project during its formative period. James, with Salmon P. Chase, a classmate of Smith's at Dartmouth College and later a Chief Justice of the Supreme Court, and Judge Elisha M. Huntington of Indiana aided Smith in incorporating the company. James, a long-time resident of Providence, Rhode Island, was made a director of the company and, as he had been supervisor of the Slater Mills in Providence, was responsible for the overall technical organization. James organized the mill, procured the materials for its construction, hired the engineers, and purchased the machinery He contracted with Tallman and Bucklin to design the mill building, and the Providence firm turned the design problem over to Thomas A. Tefft,

a young assistant.[4] James also hired Alexander McGregor of Newport as supervising architect. The close integration of technical and architectural elements in the building's design has led Wriston to conclude that James contributed the engineering information incorporated into the mill's novel design.

James also took a hand in promoting the Indiana Cotton Mills. In a pamphlet published in 1849 entitled "Practical Hints on the Comparative Costs and Productiveness of the Culture of Cotton and Costs and Productiveness of Its Manufacture...Addressed to the Cotton Planters and Capitalists of the South" he declared,

> The convenient location of the spot for transportation, its close proximity to the cotton growing regions, its vast abundance of the best fuel...its command of the Mississippi for markets...all these advantages and others ...make Cannelton the finest site for manufacturing...in the Union and fully justify the prediction that ere many years have elapsed, it will become an extensive manufacturing city, not outrivalled even by Lowell, herself.

While Smith and James encountered no difficulty securing backers for their enterprise, they seriously underestimated the capital required to float the Indiana Mills. Smith felt that $220,000 was required; James calculated $225,000. According to Wilson, additional expenses--$55,000 for factory construction, and $15,000 for machinery (much of which proved unsatisfactory)--and the rapid depletion of the nearby coal beds contributed to the financial constraints that forced the original backers to sell the mill.[5]

Smith had believed that Cannelton's coal could give the Indiana Mills a crucial economic advantage over Lowell's cotton mills. The coal, which had cost less than 2¢ per bushel in 1849 had risen to 5¢ in 1852 when the seams proved to be only a few feet thick. The following year, 1853, the owners sold the Indiana Cotton Mills to Horatio Dalton Newcomb of Louisville.

Newcomb had migrated to Louisville from Massachusetts following the Panic of 1837. Beginning in the grocery business, the Newcomb family later became involved in steamboating and eventually became interested in the coal mining operations in Cannelton. Newcomb was treasurer of the original company, and when Smith encountered financial problems during the mill's early development, Newcomb advanced Smith $30,000. In 1853, Newcomb bought the mill outright for its debt of $200,000.

Though the mills never returned the 40% profit Smith promised his backers, it was highly lucrative. According to Wilson, the mill was valued at $200,000 at the sale in 1853 and appreciated four times by 1858. Given the 1853 debt of $200,000, operational costs of $80,000 per year, and a gross income totalling $200,000 per year, Wilson states that much of the debt was probably retired by 1860. He estimates that the new owners earned a profit "well in excess" of 20% on their investment during the early years of the mill's operation.

Indiana Cotton Mills became one of the largest producers of cotton sheeting in the West. Production began on 7 January 1851 and expanded gradually. During the first month 7000 yards of 36" heavy sheeting was produced' by the end of two years the mill produced twice that amount per day. The company consumed $100,000 worth of cotton

annually, or 10% of the cotton shipped to the upper Mississippi.

The principal product of the mill throughout its early history was cotton sheeting, although a cotton batting factory was added to the rear of the plant in 1853. Under various trade names--"Cannelton Sheeting", "Great Western Sheeting", and "Hoosier Sheeting"--a plain brown muslin was produced which sold along the Ohio, Missouri, and Mississippi Rivers and as far south as Memphis and New Orleans.

Though Smith and James never realized the profits of their vision, their dream of inter-regional cooperation was successful. "Out of the 500 shares of stock (at $500 per share) outstanding in the Indiana Cotton Mills, two men from Boston owned 252 shares, the Newcombs of Louisville owned 122, and three planters from northern Louisiana owned 110."[8] The planters, hard pressed for cash, paid for their shares with cotton from their plantations. The shareholders, as well as other planters, sold directly to the mill to avoid paying a factor's fee, and by purchasing directly from the planters, the mill avoided a broker's commission. The Boston capitalists sold out following the recession of 1857 and two planters weathered three years of Civil War before they sold their shares. The third planter, John C. Ford, retained his interest, and with Newcomb was an owner of the mill.

The Indiana Cotton Mills, promoted as a challenge to the cotton mills of Lowell and an experiment in sectional cooperation, remained a center of textile manufacture until 1954.[9] Following the sale in 1853, the Newcomb family maintained control until 1881, when they sold the mill to a Louisville distiller, George Buchanan. Buchanan operated the factory for a year until it failed, and he was forced to sell to a group of Louisville bankers. The bankers placed Edward W. Chamberlain in charge of the operation and in 1906 Lee Rodman assumed charge of the mill. In 1919 Rodman purchased a controlling interest and in 1941 had become the principal stockholder, president and treasurer of the Indiana Cotton Mills.

In 1954, the Indiana Cotton Mills was purchased by the Bemis Bag Company and discontinued textile production. Today the factory is occupied by the Conner Construction Company.

Notes

1 The original name of the company was the Cannelton Cotton Mills. This was changed in 1852: see "Indiana Cotton Mills," Citizens Historical Association--Perry County.

2 Wilson, p. 75, says that Smith "owned part of the coal company" and DeLaHunt, p. 652, said that the coal company donated the land for the mill.

3 Dry Goods Reporter, 27 May 1849 and DeBow's Commercial Review July 1849.

4 Wriston, p. 173. Wriston's conclusion is amply documented but it does leave room for reasonable doubt. It seems strange that Bucklin, one of the most prolific and accomplished designers in New England, would design subsidiary buildings, and go to Cannelton to supervise their construction, leaving the main building to a junior architect at the studio. Furthermore, Tefft's name is not mentioned in any of the newspaper accounts. On the other hand, it is true that Tefft designed the impressive Providence, Rhode Island Union Station in 1848 and that the mill is compatible with his known work. The mill as designed differs in some respects from the drawings by

Tefft. In Tefft's view the mill has only three floors and an attic standing on a stepped base without a basement. The third floor contains round-headed windows instead of the flat one actually employed. The dormers are also different and the chimney is completely absent. The mill views published by Hamilton Smith in 1850 (Smith, Cannelton, p. 106 and DeBow's Review, August 1850) picture a mill design similar to what was actually built. They include a chimney, the present floor arrangement and fenestration, and the physical contours of the land, which Tefft's drawing had omitted.

5 Wilson, p. 78.
6 Wilson, p. 81.
7 Wilson, pp. 75 and 80.
8 Wilson, p. 80.
9 Citizens Historical Association--Perry County, "Indiana Cotton Mills."

The Buildings

Although several buildings were constructed at Cannelton, only one mill building was erected. Construction of the mill building, which faces the Ohio River on an 8.8 acre lot, began on 21 May 1849 and was completed in January 1851. Although the mill was considered an impressive structure, and was frequently mistaken by river travelers for a government building, its owners were quick to point out that it was not intended to be an expensive structure.[1] Its style, which reflects Tefft's interest in Lombard architecture, closely integrates mechanical and architectural components. During a period when New England factory design was simple and functional, the Indiana Cotton Mills was built to be both functional and monumental, a visible challenge to the industrial hegemony of the cotton manufactures of New England.[2] (Photo IN-1 A).

The main block, which contains three stories plus a basement and attic, is rectangular, flanked by twin towers. The last three bays at each end extend slightly from the southwest facade and are topped by gables containing oculus windows. Between the central towers is a block, topped by a smaller gable, which contains four large arched doorways (one per floor) which were used to move equipment. All the decorative elements--window sills, corbles, and cornices--are sandstone. The cornice around the entire building projects out approximately 1 1/2 feet and is supported by brackets similar to those supporting the window sills.

The towers were true utility cores. (Photo In-1 B) The east tower contained the stairway for the building and a large bell used to call workers to the factory. The west tower contained toilets, a ventilation system, and a cistern used for fire prevention. An elevator shaft was added to the west tower sometime after the initial construction was completed and has obliterated all traces of the ventilation system.

The mill is constructed of rubble masonry walls faced with coursed sandstone ashlar. The stone was taken from nearby quarries, while the wooden columns and beams were made from the white and red oak obtained from nearby forests.(Photo IN-1 D) James charged McGregor with overseeing the 200-man carpentry and stone-cutting crews employed in the mill's construction. Because labor was inexpensive and local

resources provided the building materials, the owners believed that construction costs could be kept at a minimum. The original owners seriously underestimated the cost of the building, however, and construction costs, along with increased fuel and machinery costs, led to a shortage of working capital which eventually forced them to sell the mill.

In addition to the mill building, there were several other structures occupying the site. A one-story wing housing the picker room is attached to the east end of the main block; a similar wing (which no longer survives) was equally wide but not as deep, and was attached at the opposite end. The picker room was set off from the main building as a fire prevention measure. The superintendent's house in the south corner of the lot was constructed in 1850-51 according to plans furnished by the superintendent, Ziba H. Cook.[5] The frame house still exists although somewhat modified by the renovation carried out in 1912. Other buildings on the site included two stone warehouses north of the mill, two brick boiler houses west of the mill, a stone smith shop, a stone gas house and a brick waste house in the north end of the lot. Frame buildings included an ice house, waste shed, and privy in the far north section of the lot, a warehouse in the northeast corner of the lot and a frame office building east of the mill. In addition, there were gas reservoirs, cisterns and water tanks.

Adjacent to the boiler house and west of the mill was the original smoke stack, a 135 foot stone structure that was a great source of pride for the factory. A brick stack 91 feet high was constructed before 1890 but both of these stacks apparently proved too low. A third, a giant stack over 200 feet high, was completed sometime before 1900.[7]

Tefft's design was progressive in its careful integration of aesthetic and engineering requirements. The overall shape of a spinning mill is determined by two considerations: the lightweight machinery and the need for ample light. Hence, cotton mills are multi-storied and narrow.[8] Tefft took these two requirements and created an aesthetically pleasing structure by giving careful attention to proportion. He conceived of the mill as a series of overlapping squares. For example, the height of the towers is equal to one-half of the length of the main block, and is also twice the length of the gabled end section plus the end wing at their base. (Originally there was a corresponding wing at the other end, and the building was symmetrical.) The height of the main block is equal to its depth, and is also half the distance from the far edge of one tower to the edge of the main block at the other end. In addition, the width of the gabled end section plus the end wing above their bases is equal to the height of the gabled section to the top of its base. The end wing itself is square.

At a secondary level, the width of the central tower section is half the height of that section up to the central gable; the width of the gabled end section is one-eighth the length of the main stock.

In addition to their aesthetic role, the towers functioned as part of the extensive fire prevention system. A masonry vault in the west tower connected with the main boiler stack and served as an air exhaust system to clear the air of flammable lint. As trap doors on each floor were opened, the draft produced by the boiler was capable of pulling air from the factory through a connecting tunnel and expelling the lint from the boiler chimeny. The system was used twice a day while the mill operatives were at lunch and dinner. The east tower housed a wide stairway which could be easily reached in case of fire.

Other precautions were taken to avoid fire. The mill was heated throughout by steam pipes held by metal hook plates to avoid contact with wood, and where the pipes passed through the floor the adjoining wood was covered with metal. A permanent fire ladder was attached to the north facade of the building and is still in place. Gas lighting was added in 1854.

In 1851 a fire engine, or water pumping engine, of "much power and superior finish" was purchased by the company and kept in the basement. Two cisterns behind the mill held 100,000 gallons of water. There was a 150-foot hose on each floor for fire use.[9] It appears that a more permanent fire insulation was installed before 1890. In the insurance survey for that year, there is a description of two vertical pipes connected to stationary steam pumps which could flood each floor. The steam pumps were housed in a building outside the mill and were installed solely to fight fires.

During the period when the mill building was under construction, housing for the factory workers was built. The first operatives were young New England women who were brought west under a two-year contract. The use of women operatives in New England's mills was a well established practice by the 1840's. These women often came from the farms of Vermont and New Hampshire to earn money to help a hard-pressed household or to build a bridal trousseau. "Clean, intelligent, and dutiful" New England women were attracted to Cannelton because wages there were higher than in the eastern mills.[10]

Under the supervision of Bucklin, tenements and a hotel were built to house the women. The original plan called for the tenements to line an esplanade leading up to the mill from the river. However, the company changed the site of the tenements and their exact location and structure cannot be determined. The hotel was built on the corner of Front and Adams Streets and was later incorporated into the Cannelton Sewer Pipe Company building, which has been demolished.

Notes

1 DeLaHunt, p. 652.

2 Cannelton Reporter, 8 April 1854.
Smith, p. 107, said" Its outline and finish give it the appearance of an extravagant work, but the cheapness with which the material is obtained and worked...make it an economical structure."

3 Wriston, p. 173, says "perhaps because Smith was having difficulty raising capital...or because Colonel James was standing by his quarrel with Amos Lawrence, they determined this time to have a handsome monument as well as a functioning mill."

4 DeLaHunt, p. 134-35 and Wriston, p. 171-173.

5 DeLaHunt, p. 137.

6 "Survey of Indiana Cotton Mills...On which Insurance is to be Predicated." Original on File in Office of Louisville Board of Underwriters. See reverse with diagram.

7 "Survey of Indiana Cotton Mills," and Indianapolis News 13 July 1899, p. 7.

8 Letter from Dr. Malcolm Keir to Wriston, 2/15/58, cited in Wriston p. 173. Dr. Keir said "The shape of a spinning mill is determined by two considerations: 1) the machinery is light in weight and 2) ample light must be provided, hence, the building is multi-

storied and narrow. On the other hand, looms are heavy, therefore, weave sheds are always one story high and as wide as necessary. The light in this case is by North-facing dormers set in the roof at frequent intervals a couple of feet apart..."

9 Cannelton Reporter, 8 April 1854.

10 Wilson, p. 79, and DeLaHunt, p. 654.

The Machinery

Hamilton Smith planned a cotton mill of 10,800 spindles and 372 looms and Colonel James ordered the carding, spinning, and weaving machinery from William Mason and Sons of Taunton, Massachusetts.[1] The original cost estimate of the equipment was $160,000 but much of it worked poorly and the final cost was closer to $175,000.

A steam engine fueled by coal from the nearby beds transmitted power to the machinery via a system of shafts and belts. The engine was a double horizontal high pressure engine with two 24" cylinders driven by 13 boilers. Contemporary newspaper accounts describe the engine as generating 20 hp, but given the size of the cylinders and number of boilers, this seems an extremely low figure.[3] Minerals in the water proved to be a serious problem and within 5 years caused the replacement of the entire power generating system.[4] After 15 working days, lime in the water produced a 1/16 inch scale deposit on the boiler which took two days to remove. The owners tried various methods to overcome the problem but it proved intractable, and in 1859-60 a new 400 horsepower engine was purchased.

A good description of the workings of the mill is difficult to compile. Some idea of the actual production can be gained in scattered accounts. According to a description published in 1854, the work of the mill was divided into the following departments: 5

1. Picker room. Here the cotton was opened and mixed. It employed eight workers and was housed in the low wing to the east.
2. Carding room. In this room were 108 cards, 12 drawing frames, 5 Taunton Speeders, and 6 fly frames. It employed 65 persons.
3. Spinning room. In this room were 85 spinning frames, 10,800 spindles and 16 drop wire warpers.
4. Dressing and drawing room with 21 men employed.
5. Weaving room. Here 372 looms were operated by 115 operatives.
6. Cloth room. The cloth was trimmed, folded and baled by five or six employees.
7. Batting factory.
8. The machine shop, in the basement.

This list does not give the location of each of these departments, however. There is an 1890 list which does show where the operations took place, but this is probably not the original arrangement: 6

1. Basement: machine shop, weaving and baling, roller covering.
2. First floor, main building: carding and roving.
3. Second floor: weaving.
4. Third floor: roving and spinning.
5. Attic: spooling, warping, cressing, drawing in, spinning and harness cleaning.

Notes

1 DeLaHunt, p. 107.
2 Hanger and shafting supplied by Jenks, Painter and Company of Pittsburg.
3 Cannelton Reporter. 8 April 1854.
4 Wilson, p. 78
5 Cannelton Reporter. 8 April 1854.
6 "Survey of Indiana Cotton Mills"

Bibliography

A good deal of research has already been done on the Cannelton Cotton Mills, primarily in two excellent articles which both appeared in May 1965. Architectural historian Barbara Wriston has stated her case for attributing the design of the mill to Thomas Tefft. She includes a very concise description of the mill and the history of its design. Historian Harold Wilson's article is a thorough review of the literature dealing with the company's records and newspaper articles published in the early years of the company's operations. From these sources he was able to piece together a very coherent picture of the activities of the young company. The two articles complement each other well, give a clear picture of the building and its use, and provide a sound basis for future scholarship.

Major Sources

The best sources on the economic and social impact of the factory on the one hand and the building itself are, respectively:

Wilson, Harold S. "The Indiana Cotton Mills: An Experiment in North-South Cooperation." Indiana History Bulletin, Vol. 42, No. 5, May 1965, pp. 75-83.

Wriston, Barbara. "Who Was the Architect of the Indiana Cotton Mill, 1849-50?" Journal of the Society of Architectural Historians, Vol., 24, No 2, May 1965, ppl 171-73.

Additional Published Material

Cannelton Reporter, Economist, 1849-75.

This paper contains a major source of primary information on the mill and its early history. It has the principal references to the construction and design of the building. Indiana University contains a complete set of this newspaper.

Coolidge, John. Mill and Mansion. New YOrk: 1942.
This is a pioneering study of mills and mill towns in New England.

DeLaHunt, Thomas J. Perry County: A History. Indianapolis, 1916.
DeLaHunt was probably the first historian to put together a good account of the early history of the mills. The book contains information for which the sources have now disappeared.

History of Warrick, Spencer and Perry Counties. Chicago: 1885.
Has views in the margins of the superintendent's house and the mill at the time when it still had its original row of trees on either side of the esplanade.

Smith, Hamilton. Cannelton, Perry County, Indiana. Louisville, 1850.
Lists the advantages of the Cannelton site and includes an important

early plan and view of the factory.

Unpublished Material

File of Mrs. Robert Cummings, Cannelton, Indiana. In her possession. Contains clippings and photographs of Cannelton.

Indiana Cotton Mills Manuscripts. Indiana University, Lilly Library. This very large collection contains receipts, sales books, and letters from the early years of the mill's operation.

Saalman, Otis. Unfinished manuscript on the Cannelton Cotton Mills. In the possession of Otis Saalman, Tell City, Indiana. Saalman has collected a good deal of information, but it is not in usable form and the references are unreliable.

ADDENDUM TO
CANNELTON COTTON MILLS
(INDIANA COTTON MILLS)
Between Front and Fourth Streets,
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